7 Quality Control Plan

The Quality Control Plan

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CHAPTER SEVEN:
QUALITY CONTROL PLAN

If a single part of the Certified Aggregate Producer Program is considered to be the most important, then that is the Quality Control Plan (QCP). The QCP is required to encompass the total process from preliminary site approval up to the point where the material leaves the Producer's control. The QCP is required to identify and address all products generated and the type, frequency, and limits of sampling and testing to be done. The QCP focuses on a quality product and answers the questions of who, what, when, where, and how.

QUALITY CONTROL PLAN

DEVELOPMENT

The QCP is developed while the Producer is in the Coordinated Testing Phase. When starting to develop the QCP, the Producer is required to refer to this chapter, the model QCP's (Appendix C), INDOT's preliminary site approval letter, the CAP Program (**ITM 211**), and Section **917**.

The QCP is site and plant specific. A QCP for one site would not necessarily be satisfactory for another site.

DETAILS

The following list is provided to assist in the preparation of a QCP; however, the list is not to be considered all-inclusive. A QCP is required to include:

1. The location and physical description of the site

2. Management Representative and Certified Technician(s) and their CAPP duties and responsibilities

3. A list and description of all portions of the mineral deposit as well as the manner in which each quality class is to be handled

4. A statement regarding AP aggregates. The AP Aggregate Production Control Plan may be included in an Appendix.

5. A statement regarding leachate testing for air cooled blast furnace slag. The requirements are listed in ITM 212.

6. A statement regarding bulk specific gravity testing for steel furnace slag when this material is used in stone mastic asphalt.

7. A statement regarding sampling and testing of natural sand fine aggregate when composite stockpiling multiple sources into one stockpile is done.

8. Identification of and a plan for handling materials having marginal quality characteristics

9. A list of all products produced at the plant. A CAPP category shall be identified for each of the products. This list could also be an appropriate place to identify those products for which no controls or limits are appropriate

10. A generic production flow diagram

11. A sampling plan that includes locations, devices, techniques, frequencies, and test methods

12. A testing plan that includes the types of tests and test methods, and the means to isolate material represented by nonconforming tests

13. A list of the target mean values, standard deviations, and control limits on the critical sieves for each material controlled by critical sieve requirements

14. A description of other process control techniques that are used beyond the minimum required

15. A plan for downstream controls that includes identification of stockpiles by signing, construction of stockpiles, and material retrieval

16. A statement of laboratory capability including the location of the lab, a list of equipment that is verified, and the test methods and frequency of verification

17. A documentation plan with details on control charting, test data, and the diary, etc.

18. The method by which the frequency of production and load-out testing of Certified Materials is verified

19. The location of the reference documents, control charts, diary, test data, material shipment records, and other pertinent information

20. The method of control for each Producer Yard

21. The procedure for handling addenda

22 The Annual Aggregate Source Report in an Appendix

23. An Appendix. As a minimum the Appendix is required to contain an Addenda Summary Sheet

24. Authentication and approval (two signatures required)

A QCP checklist is provided to assure that all the applicable items required in **ITM 211** are addressed in the QCP.

ADDENDA

Addenda are defined as any addition or deletion to the QCP. Each page of the QCP that is revised is required to include the source number, date of revision, and means of identifying the revision. The addenda are required to include a signed and dated authentication page.

Revisions for Certified Material additions, Certified Material deletions, target mean and control limit values, or Certified Aggregate Technicians are submitted in the format of the QCP Annex as they occur. Upon approval by the District Testing Engineer, the QCP Annex is placed in the Appendix of the QCP until such time that the revisions are incorporated into the QCP.

Revisions, other than items on the QCP Annex, are maintained on an Addenda Summary Sheet. The Addenda Summary Sheet is a page of the QCP Appendix that is used to record a brief description of the revision until such time that the revision is incorporated into the QCP.

Addenda may be submitted at the audit close-out meeting or between January 1st and April 1st of each calendar year. The addenda are required to include items on the QCP Annex, items on the Addenda Summary Sheet, and any other necessary revisions at the time of submittal. Upon incorporation into the QCP as addenda, the QCP Annex and items on the Addenda Summary Sheet are required to be removed from the QCP Appendix.

OPERATIONAL TYPES

The CAPP provides for Plants and Redistribution Terminals. The QCP is required to identify the intended type of operation. In some instances a primary source may also sell material produced at another source and therefore would be operating as both a Plant and a Redistribution Terminal.

QCP ANNEX

Company _____

Source No. _____ Q No. _____

NEW CERTIFIED MATERIAL ADDITION

Size Designation: _____ Specification: Standard or QA (see attached gradation)
Originating SC #: _____ Category Rating: IA IB IIA IIB III GS-A GS-B

Circle all that apply

Type: [Stone] [Gvl (Crushed/Uncrushed)] [Sand (Man./Nat./Slag)] [Slag (ACBF/SF)]
[Dolomite Approved (ITM 205)] [Recycled Concrete (Contract #: _____)]
[Alternate Polish Resistant Aggregate (ITM 214)] [Other _____]

Product Quality Rating: AP AS A B C D E F NA

Ledges and/or Area of Production: _____
Does finished product go into Separate or Composite Stockpile? _____
Is material from New Production, Existing Stockpile, or Both? _____
Size of Existing Stockpile: _____ t Annual Production: <10000 t ≥10000t

EXISTING CERTIFIED MATERIAL REVISION

Current Size Designation: _____ Originating SC #: _____
New Size Designation: _____ Type (see above): _____
Ledges: _____ Product Quality Rating: AP AS A B C D E F NA

EXISTING CERTIFIED MATERIAL DELETION

Size Designation: _____ Originating SC #: _____ Type (see above): _____
Product Quality Rating: AP AS A B C D E F NA D# (DTE)_____

TARGET MEAN and CONTROL LIMITS REVISION

Certified Material: _____
Current $\bar{X}$: _____ Existing Control Limits: _____
New $\bar{X}$: _____ σ: _____ # Tests: _____ New Control Limits: _____

CERTIFIED AGGREGATE TECHNICIAN REVISION

Delete CAT from QCP _____
Add CAT to QCP _____

_____ _____ _____ _____
District Testing Engineer Date Management Representative Date

3/27/09

CERTIFIED AGGREGATE
QUALITY CONTROL PLAN CHECKLIST

Date _____

Source No. _____

Plant/Redistribution Terminal Name _____

Plant/Redistribution Terminal Location _____

[ ] Telephone Number
[ ] Address
[ ] County
[ ] Section
[ ] Township
[ ] Range
[ ] Reference to Identifiable Points

Parent Company Name _____

[ ] Address

Type of Aggregate Source

[ ] Plant, Redistribution Terminal, or Combination

Organizational Structure

[ ] Management Representative
[ ] Certified Technician(s) by Location
[ ] CAPP Duties and Responsibilities of People Listed

Mineral Deposits

[ ] List
[ ] Description
[ ] Quality Class
[ ] Processing, Handling, & Stockpiling Procedures
[ ] Summary of Ledge Quality Test Letter Date (Stone)
[ ]* Marginal Quality Products and Plan for Control

* Only If Occurs

AP Aggregate *

- [ ] Ledges for Stone or Production Zone for Gravel
- [ ] General Handling and Crushing Procedures
- [ ] Stockpile Signage
- [ ] AP Production Control Plan in Appendix (optional)

Air Cooled Blast Furnace Slag -- Leachate Testing*

- [ ] Sampling Procedure
- [ ] Testing Procedure (ITM 212)
- [ ] Frequency

Steel Furnace Slag – Deleterious Testing*

- [ ] Sampling Procedure
- [ ] Testing Procedure (ITM 219)
- [ ] Frequency

Steel Furnace Slag -- Bulk Specific Gravity Testing (SMA)*

- [ ] Sampling Procedure
- [ ] Testing Procedure (AASHTO T 85)
- [ ] Frequency

Composite Stockpiling*

- [ ] Sources
- [ ] Monthly Summary Report
- [ ] Means of Tracking Bulk Specific Gravity and Absorption

Material Categories - Each

- [ ] Standard Specifications
- [ ] Quality Assurance
- [ ] Alternate

Production Flow Diagram

- [ ] Points of Sampling
- [ ] Symbol Legend

* Only If Occurs

Sampling Plan

- [ ] Frequency
- [ ] Locations
- [ ] Sampling Devices and Techniques
- [ ] Test Method Numbers
- [ ] Means of Tracking Production and Load-out Tests

Testing Plan

- [ ] Gradation
- [ ] Decantation (Load-out only)
- [ ]* Crushed Particles (Min. 1/Week, None If < 100 t)
- [ ]* Deleterious Material (Min. 1/Week, None If < 100 t)
- [ ] Procedure for Isolating Non-Conforming Material
- [ ] Test Method Numbers

Gradation Control

- [ ] Critical Sieve for Quality Assurance Materials
- [ ] Target Mean Values - Each
- [ ] Standard Deviations - Each
- [ ] Control Limits - Each
- [ ] Gradation Limits for all Applicable Sieves for Quality Assurance Materials
- [ ]* Identification of Materials with no Control Limits
- [ ]* Load-Out Target Mean and Control Limits Different from Normal Production Values

Process Control Techniques

- [ ]* Types or Greater Frequencies of Testing
- [ ]* Mid Stream Sampling & Testing
- [ ]* Visual Checks & Monitoring

Downstream Control

- [ ] Identification of Stockpiles (Size of Material)
- [ ] Stockpile Construction Technique
- [ ] Product Retrieval Technique - Loading & Shipping Safeguards

* Only If Occurs

Laboratory Capability

[ ] Location
[ ] List and Description of Verified Equipment
[ ] Verification Test Methods and Frequency

Documentation Plan

[ ] Reference Publications
[ ] Diary
[ ] Control Charts
[ ] Test Data
[ ] Material Shipment Record
[ ] Location of Documents
[ ] Copies of Forms (optional)

Producer Yard

[ ]* Method of Control

Addenda

[ ] Means of Handling Addenda
[ ] Statement Concerning Source Number, Date of Revision, and Means of Identifying Revision

Annual Aggregate Source Report (Stone Only)

[ ] Included in Appendix

Authentication

[ ] Last Page
[ ] Right Hand Signature Block Signed and Dated by Producer Management Representative
[ ] Left Hand Blank & Title – Manager, Office of Materials Management

_____

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